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| 09/528,261 | 03/17/2000 | Barry L. Hass | 2204/A01 | 4222 |

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Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/528,261 | HASS, BARRY L. | |
| | Examiner | Art Unit | |
| | Robert W Wilson | 2661 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *11 June 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-57* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-57* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

**1.0** The application of Barry L. Hass for the application entitled "SYSTEM, DEVICE AND METHOD FOR SUPPORTING A LABEL SWITCHED PATH ACROSS A NON-MPLS COMPLIANT SEGEMENT" filed 3/17/2000 without foreign was examined. Claims 1-57 are pending.

### *Claim Rejections - 35 USC § 103*

**2.0** The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

**3.0** **Claims 1-18 & 28-57** are rejected under 35 U.S.C. 103(a) as being unpatentable over Tappan (U.S. Patent No.: 6,473,421)

Referring to **Claim 1**, Tappan teaches: a method for establishing a label switched path for forwarding a packet with a label stack in a communication network, the communication network including a first label switched domain and a second label switched domain interconnected by a non-label switched domain (The reference teaches a method for encapsulating MPLS packets from a first section of customer's network or first label switched domain into ATM network provided by a carrier or ISP thereby tunneling the packets to a second section of customer's network or second label switched domain per col. 2 line 36-col. 4 line 49) the method comprising:

Establishing a tunnel across the non-label switched domain which connects the first label switched domain and the second label switched domain (The reference teaches establishing a VPI/VCI or tunnels through a service provider's network or non-label switched domain which connects a first section of customer's network which is utilizing MPLS or first label switched domain and a second section of the customer's network which is also utilizing MPLS or second label switched domain per col. 2 line 36-col. 4 line 49)

Encapsulating the packet and label stack to form an encapsulated packet and forwarding the encapsulated packet through the tunnel (The edge router encapsulates the MPLS packet into

ATM and forwards the packet in a VPI/VCI or tunnel through the service providers network per col. 2 line 36-col. 4 line 49 and Fig 5)

Forwarding the encapsulated packet through the tunnel whereby the label stack information is preserved (The edge router encapsulates the MPLS packet into ATM and forwards the packet in a VPI/VCI or tunnel through the service providers network whereby the stack link is preserved so that it can be utilized on the other end to designate the destination address on the second section of the customer's MPLS network per col. 2 line 36-col. 4 line 49 and Fig 5)

Tappan does not expressly call for: label switched and non-label switched but teaches MPLS and ATM per col. 2 lines 36-col. 4 line 49 and Fig 5

It would have been obvious to one of ordinary skill in the art at the time of the invention that MPLS performs the same function as a label switched domain because it utilizes a label stack for switching and that the service provides network performs the tunneling function because it encapsulates MPLS packets into ATM sends the ATM across the network in VPI/VCIs.

**In Addition Tappan teaches:**

Regarding **Claim 2**, wherein establishing a tunnel includes a mapping a top label stack to the tunnel (The edge router maps the top label to a VPI/VCI in the routing table per col. 2 line 36-col. 4 line 49)

Regarding **Claim 3**, wherein the tunnel is an IP tunnel (The reference teaches tunneling via ATM SVCs per col. 2 line 36-col. 4 line 49 of the primary reference. The examiner takes official notice that IP tunneling over a carrier network is well known in the art per U.S. Patent No.: 6,493,349 per col. 7 lines 13-20. The carrier has no desire to customize their network to be just like a customer's network in order to carry a customer's traffic; consequently, the carrier 's tunnel all kinds of unique customer protocol across the carrier's network. It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute IP GRE in place of the ATM SVCs based upon availability.)

Regarding **Claim 4**, wherein the IP tunnel is a Generic Routing Encapsulation (GRE) tunnel (The reference teaches tunneling via ATM SVCs per col. 2 line 36-col. 4 line 49 of the primary reference. The examiner takes official notice that IP tunneling over a carrier network is well known in the art per U.S. Patent No.: 6,493,349 per col. 7 lines 13-20. The carrier has no desire to customize their network to be just like a customer's network in order to carry a customer's traffic; consequently, the carrier 's tunnel all kinds of unique customer protocol across the carrier's network. It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute IP GRE in place of the ATM SVCs based upon availability.)

Regarding **Claim 5**, wherein encapsulating the packet and label stack information includes providing a label switching protocol identifier such that the second label switched domain may

identify the packet and the label stack (The carrier's edge router reads a label in order to determine the customer's MPLs packet final destination address per col. 2 line 36-col. 4 line 49.)

Regarding **Claim 6**, wherein the first label switched domain is a Multiprotocol Label Switching (MPLS) domain (The first section of customer's MPLS network or first label switched domain per col. 2 line 36-col. 4 line 49)

Regarding **Claim 7**, wherein the second label switched domain is a Multiprotocol Label Switching (MPLS) domain (The second section of the customer's MPLS network or second label switched domain per col. 2 line 36-col. 4 line 49)

Regarding **Claim 8**, wherein the first label switched domain is a MPLS domain and the second label switched domain is a MPLS domain (The first section of customer's MPLS network or first label switched domain and the second section of the customer's MPLS network or second label switched domain per col. 2 line 36-col. 4 line 49)

Regarding **Claim 9**, wherein encapsulating the packet and label stack information includes providing an MPLS identifier in the encapsulated packet such that the second label switched domain may identify the packet and label stack (The carrier's edge router de-encapsulates the MPLS and reads the label stack in order to determine the customer's final destination address per col. 2 line 36-col. 4 line 49)

Referring to **Claim 10**, Tappan teaches: A device for establishing a label switched path for forwarding a packet with a label stack in a communication network, the communication network including a first label switched domain and a second label switched domain interconnected by a non-label switched domain (The reference teaches an edge router or device which encapsulates MPLS packets from a first section of customer's network or first label switched domain into ATM network provided by a carrier or ISP thereby tunneling the packets to a second section of customer's network or second label switched domain per col. 2 line 36-col. 4 line 49) the device comprising:

Label switching forwarding logic for identifying the next hop for the packet (The edge router reads a label and looks up the VPI/VCI in the forwarding table per col. 2 line 36-col. 4 line 49)

Encapsulating logic for encapsulating the packet and label stack to form an encapsulated packet and establishing a tunnel across the non-label switched domain which connects the first label switched domain and the second label switched domain (The edge router encapsulates the MPLS packet and label stack into ATM and forwards the packet in a VPI/VCI or tunnel through the service providers network or non-label switched domain which connects the first section of the customer's MPLS network or first label switched domain and the second section of the customer's network or second label switched domain per col. 2 line 36-col. 4 line 49 and Fig 5)

Forwarding logic for forwarding the encapsulated packet through the tunnel (The edge router encapsulates the MPLS packet into ATM and forwards the packet in a VPI/VCI or tunnel

through the service providers network whereby the stack link is preserved so that it can be utilized on the other end to designate the destination address on the second section of the customer's MPLS network per col. 2 line 36-col. 4 line 49 and Fig 5)

Tappan does not expressly call for: logic but teaches edge router per col. 2 lines 36-col. 4 line 49 and Fig 5

It is within the level of one skilled in the art to implement the function defined in the reference as logic in an edge router.

**In Addition Tappan teaches:**

Regarding **Claim 11**, wherein establishing a tunnel includes a mapping a top label stack to the tunnel (The edge router maps the top label to a VPI/VCI in the routing table per col. 2 line 36-col. 4 line 49)

Regarding **Claim 12**, wherein the tunnel is an IP tunnel (The reference teaches tunneling via ATM SVCs per col. 2 line 36-col. 4 line 49 of the primary reference. The examiner takes official notice that IP tunneling over a carrier network is well known in the art per U.S. Patent No.: 6,493,349 per col. 7 lines 13-20. The carrier has no desire to customize their network to be just like a customer's network in order to carry a customer's traffic; consequently, the carrier 's tunnel all kinds of unique customer protocol across the carrier's network. It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute IP GRE in place of the ATM SVCs based upon availability.)

Regarding **Claim 13**, wherein the IP tunnel is a Generic Routing Encapsulation (GRE) tunnel (The reference teaches tunneling via ATM SVCs per col. 2 line 36-col. 4 line 49 of the primary reference. The examiner takes official notice that IP tunneling over a carrier network is well known in the art per U.S. Patent No.: 6,493,349 per col. 7 lines 13-20. The carrier has no desire to customize their network to be just like a customer's network in order to carry a customer's traffic; consequently, the carrier 's tunnel all kinds of unique customer protocol across the carrier's network. It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute IP GRE in place of the ATM SVCs based upon availability.)

Regarding **Claim 14**, wherein encapsulating the packet and label stack information includes providing a label switching protocol identifier such that the second label switched domain may identify the packet and the label stack (The carrier's edge router reads a label in order to determine the customer's MPLs packet final destination address per col. 2 line 36-col. 4 line 49.)

Regarding **Claim 15**, wherein the first label switched domain is a Multiprotocol Label Switching (MPLS) domain (The first section of customer's MPLS network or first label switched domain per col. 2 line 36-col. 4 line 49)

Regarding **Claim 16**, wherein the second label switched domain is a Multiprotocol Label Switching (MPLS) domain (The second section of the customer's MPLS network or second label switched domain per col. 2 line 36-col. 4 line 49)

Regarding **Claim 17**, wherein the first label switched domain is a MPLS domain and the second label switched domain is a MPLS domain (The first section of customer's MPLS network or first label switched domain and the second section of the customer's MPLS network or second label switched domain per col. 2 line 36-col. 4 line 49)

Regarding **Claim 18**, wherein encapsulating the packet and label stack information includes providing an MPLS identifier in the encapsulated packet such that the second label switched domain may identify the packet and label stack (The carrier's edge router de-encapsulates the MPLS and reads the label stack in order to determine the customer's final destination address per col. 2 line 36-col. 4 line 49)

Referring to **Claim 28**, Tappan teaches: A method for establishing a label switched path for forwarding a packet with a label stack in a communication network, the communication network including the first label switched domain and the second label switched domain interconnected by a non-label switched domain (The reference teaches a method for encapsulating MPLS packets from a first section of customer's network or first label switched domain into ATM network provided by a carrier or ISP thereby tunneling the packets to a second section of customer's network or second label switched domain per col. 2 line 36-col. 4 line 49) the method comprising:

Establishing a tunnel across the non-label switched domain which connects the first label switched domain and the second label switched domain (The edge router establishing a VPI/VCI or tunnel across the service provider's network which is between the first section of customer's MPLS network or first label switched domain and a second section of customer's MPLS network or second label switched domain per col. 2 line 36-col. 4 line 49)

Receiving an encapsulated packet from the tunnel, the encapsulated packet including a label stack (service provider's edge router removes the ATM encapsulation and checks the label to determine what destination to forward the MPLS packet in the customer's network per col. 4 lines 35-50)

Forwarding the de-encapsulated packet and label stack across the second label switched domain (service provider's edge router removes the ATM encapsulation or de-encapsulates and checks the label in the label stack to determine what destination to forward the MPLS packet in the customer's network or second label switched domain per col. 4 lines 35-50)

Tappan does not expressly call for: label switched and non-label switched but teaches MPLS and ATM per col. 2 lines 36-col. 4 line 49 and Fig 5

It would have been obvious to one of ordinary skill in the art at the time of the invention that MPLS performs the same function as a label switched domain because it utilizes a label stack for switching and that the service provides network performs the tunneling function because it encapsulates MPLS packets into ATM sends the ATM across the network in VPI/VCIs.

**In Addition Tappan teaches:**

Regarding **Claim 29**, wherein the first label switched domain is a Multiprotocol Label Switching (MPLS) domain (The first section of customer's MPLS network or first label switched domain per col. 2 line 36-col. 4 line 49)

Regarding **Claim 30**, wherein the tunnel is an IP tunnel (The reference teaches tunneling via ATM SVCs per col. 2 line 36-col. 4 line 49 of the primary reference. The examiner takes official notice that IP tunneling over a carrier network is well known in the art per U.S. Patent No.: 6,493,349 per col. 7 lines 13-20. The carrier has no desire to customize their network to be just like a customer's network in order to carry a customer's traffic; consequently, the carrier 's tunnel all kinds of unique customer protocol across the carrier's network. It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute IP GRE in place of the ATM SVCs based upon availability.)

Regarding **Claim 31**, wherein the IP tunnel is a Generic Routing Encapsulation (GRE) tunnel (The reference teaches tunneling via ATM SVCs per col. 2 line 36-col. 4 line 49 of the primary reference. The examiner takes official notice that IP tunneling over a carrier network is well known in the art per U.S. Patent No.: 6,493,349 per col. 7 lines 13-20. The carrier has no desire to customize their network to be just like a customer's network in order to carry a customer's traffic; consequently, the carrier 's tunnel all kinds of unique customer protocol across the carrier's network. It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute IP GRE in place of the ATM SVCs based upon availability.)

Regarding **Claim 32**, wherein encapsulating the packet and label stack information includes providing a label switching protocol identifier such that the second label switched domain may identify the packet and the label stack (The carrier's edge router reads a label in order to determine the customer's MPLs packet final destination address per col. 2 line 36-col. 4 line 49.)

Regarding **Claim 33**, wherein encapsulating the packet and label stack information includes providing an MPLS identifier in the encapsulated packet such that the second label switched domain may identify the packet and label stack (The carrier's edge router de-encapsulates the MPLS and reads the label stack in order to determine the customer's final destination address per col. 2 line 36-col. 4 line 49)

Referring to **Claim 34**, Tappan teaches: A device for establishing a label switched path for forwarding a packet with a label stack in a communication network, the communication network including a first label switched domain and a second label switched domain interconnected by a non-label switched domain (The reference teaches a carrier's edge router or device which

encapsulates MPLS packets from a first section of customer's network or first label switched domain into ATM network provided by a carrier or ISP thereby tunneling the packets to a second section of customer's network or second label switched domain per col. 2 line 36-col. 4 line 49) the device comprising:

Receiving logic for receiving an encapsulated packet from a tunnel across the non-label switched domain which connects the first label switched domain and the second label switched domain, the encapsulated packet including a label stack (The carrier's edge router receives a MPLS packet which has been encapsulated in ATM and tunneled in a VPI/VCI across a carrier network where the carrier network is in between a first section of customer's MPLS network or first label switched domain and a second section of customer's MPLS network or second MPLS domain per col. 2 line 36-col. 4 line 49)

De-encapsulating logic for de-encapsulating the encapsulated packet and label stack (The carrier's edge router (The carrier edge router de-encapsulated the MPLS packet received from the first section of the customer's MPLS network or first label switched domain per col. 2 line 36-col. 4 line 49 and Fig 5)

Forwarding logic for forwarding the de-encapsulated packet and label stack across the second label switched domain (service provider's edge router removes the ATM encapsulation or de-encapsulates and checks the label in the label stack to determine what destination to forward the MPLS packet in the customer's network or second label switched domain per col. 4 lines 35-50)

Tappan does not expressly call for: logic but teaches carrier's edge router per col. 2 lines 36-col. 4 line 49 and Fig 5

It is within the level of one skilled in the art to implement the function defined in the reference as logic in the carrier's edge router.

**In Addition Tappan teaches:**

Regarding **Claim 35** wherein the tunnel is an IP tunnel (The reference teaches tunneling via ATM SVCs per col. 2 line 36-col. 4 line 49 of the primary reference. The examiner takes official notice that IP tunneling over a carrier network is well known in the art per U.S. Patent No.: 6,493,349 per col. 7 lines 13-20. The carrier has no desire to customize their network to be just like a customer's network in order to carry a customer's traffic; consequently, the carrier 's tunnel all kinds of unique customer protocol across the carrier's network. It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute IP GRE in place of the ATM SVCs based upon availability.)

Regarding **Claim 36**, wherein the IP tunnel is a Generic Routing Encapsulation (GRE) tunnel (The reference teaches tunneling via ATM SVCs per col. 2 line 36-col. 4 line 49 of the primary reference. The examiner takes official notice that IP tunneling over a carrier network is well

known in the art per U.S. Patent No.: 6,493,349 per col. 7 lines 13-20. The carrier has no desire to customize their network to be just like a customer's network in order to carry a customer's traffic; consequently, the carrier 's tunnel all kinds of unique customer protocol across the carrier's network. It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute IP GRE in place of the ATM SVCs based upon availability.)

Regarding **Claim 37**, wherein the first label switched domain is a Multiprotocol Label Switching (MPLS) domain (The first section of customer's MPLS network or first label switched domain per col. 2 line 36-col. 4 line 49)

Regarding **Claim 38**, wherein encapsulating the packet and label stack information includes providing an MPLS identifier in the encapsulated packet such that the second label switched domain may identify the packet and label stack (The carrier's edge router de-encapsulates the MPLS and reads the label stack in order to determine the customer's final destination address per col. 2 line 36-col. 4 line 49)

Regarding **Claim 39**, wherein the encapsulated packet includes a MPLS identifier such that the second label switched domain may identify the packet and label stack (The carrier's edge router de-encapsulates the MPLS and reads the label stack in order to determine the customer's final destination address. The customer's second section of MPLS network can identify the presence of a label stack based upon the S bits as shown in Fig 5 or per col. 2 line 36-col. 4 line 49. The examiner takes official notice that S bits are well known in the art per U.S. Patent No.: 6522,627 Fig 5 which teaches that S bit at the bottom of the stack is a 1. It would have been obvious to one of ordinary skill in the art at the time of the invention that absence of an S bit set equal to one in the final stack would indicate that MPLS is not being performed)

Referring to **Claim 40**, Tappan teaches: A computer program product for use on a computer system for establishing a label switched path for forwarding a packet with a label stack in a communication network, the communication network including a first label switched domain and a second label switched domain interconnected by a non-label switched domain the computer program product comprising a computer readable medium having a computer readable program code thereon (The reference teaches a method for encapsulating MPLS packets from a first section of customer's network or first label switched domain into ATM network provided by a carrier or ISP thereby forwarding the MPLS packets including label stack through a carrier's ATM network or non-label switched network to a second section of customer's network or second label switched domain per col. 2 line 36-col. 4 line 49) the computer readable program code including:

Program code for establishing a tunnel across the non-label switched domain which connects the first label switched domain and the second label switched domain (The reference teaches an edge router establishing a VPI/VCI or tunnels through a service provider's network or non-label switched domain which connects a first section of customer's network which is utilizing MPLS or first label switched domain and a second section of the customer's network which is also utilizing MPLS or second label switched domain per col. 2 line 36-col. 4 line 49)

Program code for receiving an encapsulated packet from the tunnel, the encapsulated packet including a label stack (The carrier's edge router receives a MPLS packet which has been encapsulated in ATM and tunneled in a VPI/VCI across a carrier network where the carrier network is in between a first section of customer's MPLS network or first label switched domain and a second section of customer's MPLS network or second MPLS domain per col. 2 line 36-col. 4 line 49)

Program code for de-encapsulating the encapsulated packet and label stack (The carrier's edge router (The carrier edge router de-encapsulated the MPLS packet received from the first section of the customer's MPLS network or first label switched domain per col. 2 line 36-col. 4 line 49 and Fig 5)

Program code for forwarding the de-encapsulated packet and label stack across the second label switched domain (service provider's edge router removes the ATM encapsulation or de-encapsulates and checks the label in the label stack to determine what destination to forward the MPLS packet in the customer's network or second label switched domain per col. 4 lines 35-50)

Tappan does not expressly call for: program code or computer readable medium but teaches carrier's edge router per col. 2 lines 36-col. 4 line 49 and Fig 5

It is within the level of one skilled in the art to implement the functions defined in the reference as software or program code. It would have been obvious to one of ordinary skill in the art at the time of the invention to store the program code on a computer readable medium so that it can be executed on a processor.

**In Addition Tappan teaches:**

Regarding **Claim 41** wherein the tunnel is an IP tunnel (The reference teaches tunneling via ATM SVCs per col. 2 line 36-col. 4 line 49 of the primary reference. The examiner takes official notice that IP tunneling over a carrier network is well known in the art per U.S. Patent No.: 6,493,349 per col. 7 lines 13-20. The carrier has no desire to customize their network to be just like a customer's network in order to carry a customer's traffic; consequently, the carrier 's tunnel all kinds of unique customer protocol across the carrier's network. It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute IP GRE in place of the ATM SVCs based upon availability.)

Regarding **Claim 42**, wherein the IP tunnel is a Generic Routing Encapsulation (GRE) tunnel (The reference teaches tunneling via ATM SVCs per col. 2 line 36-col. 4 line 49 of the primary reference. The examiner takes official notice that IP tunneling over a carrier network is well known in the art per U.S. Patent No.: 6,493,349 per col. 7 lines 13-20. The carrier has no desire to customize their network to be just like a customer's network in order to carry a customer's traffic; consequently, the carrier 's tunnel all kinds of unique customer protocol across the

carrier's network. It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute IP GRE in place of the ATM SVCs based upon availability.)

Regarding **Claim 43**, wherein the first label switched domain is a MPLS domain and the second label switched domain is a MPLS domain (The first section of customer's MPLS network or first label switched domain and the second section of the customer's MPLS network or second label switched domain per col. 2 line 36-col. 4 line 49)

Regarding **Claim 44**, wherein encapsulating the packet and label stack information includes providing an MPLS identifier in the encapsulated packet such that the second label switched domain may identify the packet and label stack (The carrier's edge router de-encapsulates the MPLS and reads the label stack in order to determine the customer's final destination address per col. 2 line 36-col. 4 line 49)

Regarding **Claim 45**, wherein the encapsulated packet includes a MPLS identifier such that the second label switched domain may identify the packet and label stack (The carrier's edge router de-encapsulates the MPLS and reads the label stack in order to determine the customer's final destination address. The customer's second section of MPLS network can identify the presence of a label stack based upon the S bits as shown in Fig 5 or per col. 2 line 36-col. 4 line 49. The examiner takes official notice that S bits are well known in the art per U.S. Patent No.: 6522,627 Fig 5 which teaches that S bit at the bottom of the stack is a 1. It would have been obvious to one of ordinary skill in the art at the time of the invention that absence of an S bit set equal to one in the final stack would indicate that MPLS is not being performed)

Referring to **Claim 46**, Tappan teaches: A method, executed in a communication system having a first label switched domain interconnected with a second label switched domain by a non-label switched domain, for forwarding a label switched packet from the first label switched domain to the second label switched domain (The reference teaches a communication system consisting of a first section of customer's MPLS network or first label switched domain and a section of customer's MPLS network or 2nd label switched domain interconnected by a carrier network or non-label switched domain per col. 2 lines 36-col. 4 line 49) the method comprising:

Establishing a tunnel from an egress device for the first label switched domain to an ingress device of the second label switched domain over the non-label switched domain (The edge router or egress device of the customer's MPLS network or first label switched domain is connected to a carriers edge router or ingress device which is connected to a second customer MPLS network or second label switched domain over a carrier network or non-label switched domain per col. 2 lines 36-col. 4 line 49)

Encapsulating the label switched packet by the egress device of the first label switched domain (The edge router or egress device encapsulates the MPLS packet from the first section of the customer's MPLS network of first label switched domain into ATM and forwards the packet in a VPI/VCI or tunnel per col. 2 line 36-col. 4 line 49 and Fig 5)

Forwarding the encapsulated label switched packet by the egress device of the first label switched domain over the tunnel to the ingress device of the second label switched domain (The edge router or egress device encapsulates the MPLS packet into ATM and forwards the packet in a VPI/VCI or tunnel through the service providers network to the second section of the customer's MPLS network or second label switched domain per col. 2 line 36-col. 4 line 49 and Fig 5)

De-encapsulating the encapsulated label switched packet by the ingress device of the second label switched domain (The carrier's edge router de-encapsulates the MPLS packet which is in the ATM cell. The carrier's edge router is connected to the second section of the customer's MPLS network or second label switched domain)

Forwarding the de-encapsulated label switched packet by the ingress device of the second label switched domain based upon label switching information in the packet (The service provider's edge router removes the ATM encapsulation or de-encapsulates and checks the label in the label stack to determine what destination to forward the MPLS packet in the customer's network or second label switched domain per col. 4 lines 35-50)

Tappan does not expressly call for: label switched and non-label switched but teaches MPLS and ATM per col. 2 lines 36-col. 4 line 49 and Fig 5

It would have been obvious to one of ordinary skill in the art at the time of the invention that MPLS performs the same function as a label switched domain because it utilizes a label stack for switching and that the service provides network performs the tunneling function because it encapsulates MPLS packets into ATM sends the ATM across the network in VPI/VCIs.

**In Addition Tappan teaches:**

Regarding **Claim 47**, wherein the first label switched domain is a MPLS domain and the second label switched domain is a MPLS domain (The first section of customer's MPLS network or first label switched domain and the second section of the customer's MPLS network or second label switched domain per col. 2 line 36-col. 4 line 49)

Regarding **Claim 48,** wherein the tunnel is an IP tunnel (The reference teaches tunneling via ATM SVCs per col. 2 line 36-col. 4 line 49 of the primary reference. The examiner takes official notice that IP tunneling over a carrier network is well known in the art per U.S. Patent No.: 6,493,349 per col. 7 lines 13-20. The carrier has no desire to customize their network to be just like a customer's network in order to carry a customer's traffic; consequently, the carrier 's tunnel all kinds of unique customer protocol across the carrier's network. It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute IP GRE in place of the ATM SVCs based upon availability.)

Regarding **Claim 49**, wherein the IP tunnel is a Generic Routing Encapsulation (GRE) tunnel (The reference teaches tunneling via ATM SVCs per col. 2 line 36-col. 4 line 49 of the primary

reference. The examiner takes official notice that IP tunneling over a carrier network is well known in the art per U.S. Patent No.: 6,493,349 per col. 7 lines 13-20. The carrier has no desire to customize their network to be just like a customer's network in order to carry a customer's traffic; consequently, the carrier 's tunnel all kinds of unique customer protocol across the carrier's network. It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute IP GRE in place of the ATM SVCs based upon availability.)

Referring to **Claim 50**, Tappan teaches: A computer program for executing a tunneling protocol for interconnecting a first label switched domain and a second label switched domain (The reference teaches a method for encapsulating MPLS packets from a first section of customer's network or first label switched domain into ATM network provided by a carrier or ISP thereby tunneling the packets through a non-label switched domain to a second section of customer's network or second label switched domain per col. 2 line 36-col. 4 line 49)

Encapsulation means for encapsulating a payload packet from a label switched protocol (The edge router encapsulates the MPLS packet or label switched protocol into a payload packet per col. 2 lines 36-col. 4 line 49 and Fig 5) and

A protocol type indicator for identifying the label switched protocol (The applicant broadly claims "protocol type indicator for identifying the label switched protocol". The examiner has interpreted "S1" in the label stack as a the protocol indicator per Fig 5. "S1" is a protocol indicator for MPLS because "S1" indicates whether there is a final label in the MPLS label stack or not; consequently, it would be obvious to one of ordinary skill in the art at the time of the invention that "S1" would indicate the presence or absence of a MPLS stack which performs the same function as a protocol indicator)

Tappan does not expressly call for: a computer program product but teaches the functions necessary to perform the limitation of the claim above.

It is within the level of one skilled in the art to implement the functions in software or program code.

**In Addition Tappan teaches:**

Regarding **Claim 51**, wherein the label switched protocol is MPLS (MPLS per col. 2 line 36-col. 4 line 49)

Regarding **Claim 52**, wherein the IP tunnel is a Generic Routing Encapsulation (GRE) tunnel (The reference teaches tunneling via ATM SVCs per col. 2 line 36-col. 4 line 49 of the primary reference. The examiner takes official notice that IP tunneling over a carrier network is well known in the art per U.S. Patent No.: 6,493,349 per col. 7 lines 13-20. The carrier has no desire to customize their network to be just like a customer's network in order to carry a customer's

traffic; consequently, the carrier 's tunnel all kinds of unique customer protocol across the carrier's network. It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute IP GRE in place of the ATM SVCs based upon availability.)

Referring to **Claim 53**, Tappan teaches: A communication system comprising a first label switched domain having an egress device (The reference teaches communication system, edge router or egress device, and a first section of customer network which utilizes MPLS or first label switched domain per col. 2 line 36-col. 4 line 49),

a second label switched domain which couples the egress device of the first label switched domain to the ingress device of the second label switched domain, wherein a label switched path for forwarding a packet and label stack is established (The first section of customer's MPLS or first label switched network is connect to an edge router or egress device. The edge router or egress device is connected to a carrier's network which in turn is connected to the 2nd section of customer's MPLS network or second label switched domain per col. 2 line 36-col. 4 line 49)(

Establishing a tunnel from an egress device across the non-label switched domain which connects the first label switched domain and the second label switched domain (The reference teaches establishing a VPI/VCI or tunnels from an edge router or egress device through a service provider's network or non-label switched domain which connects a first section of customer's network which is utilizing MPLS or first label switched domain and a second section of the customer's network which is also utilizing MPLS or second label switched domain per col. 2 line 36-col. 4 line 49)

Encapsulating the packet and label stack by the egress device of the first label switched (The edge router or egress device encapsulates the MPLS packet into ATM which is received from the first section of the customer's MPLS network or first label switched domain and forwards the packet in a VPI/VCI or tunnel through the service providers network per col. 2 line 36-col. 4 line 49 and Fig 5)

Forwarding the encapsulated packet by the egress device of the first label switched domain over the tunnel to the ingress device of the second label switched domain (The edge router or egress device encapsulates the MPLS packet into ATM and forwards the packet in a VPI/VCI or tunnel through the service providers network to a carrier's edge router or ingress device to the second section of the customer's MPLS network or second label switched domain per col. 2 line 36-col. 4 line 49 and Fig 5)

Tappan does not expressly call for: label switched and non-label switched but teaches MPLS and ATM per col. 2 lines 36-col. 4 line 49 and Fig 5

It would have been obvious to one of ordinary skill in the art at the time of the invention that MPLS performs the same function as a label switched domain because it utilizes a label stack

for switching and that the service provides network performs the tunneling function because it encapsulates MPLS packets into ATM sends the ATM across the network in VPI/VCIs.

**In Addition Tappan teaches:**

Regarding **Claim 54**, wherein the first label switched domain is a MPLS domain and the second label switched domain is a MPLS domain (The first section of customer's MPLS network or first label switched domain and the second section of the customer's MPLS network or second label switched domain per col. 2 line 36-col. 4 line 49)

Regarding **Claim 55,** wherein the tunnel is an IP tunnel (The reference teaches tunneling via ATM SVCs per col. 2 line 36-col. 4 line 49 of the primary reference. The examiner takes official notice that IP tunneling over a carrier network is well known in the art per U.S. Patent No.: 6,493,349 per col. 7 lines 13-20. The carrier has no desire to customize their network to be just like a customer's network in order to carry a customer's traffic; consequently, the carrier 's tunnel all kinds of unique customer protocol across the carrier's network. It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute IP GRE in place of the ATM SVCs based upon availability.)

Regarding **Claim 56**, wherein the IP tunnel is a Generic Routing Encapsulation (GRE) tunnel (The reference teaches tunneling via ATM SVCs per col. 2 line 36-col. 4 line 49 of the primary reference. The examiner takes official notice that IP tunneling over a carrier network is well known in the art per U.S. Patent No.: 6,493,349 per col. 7 lines 13-20. The carrier has no desire to customize their network to be just like a customer's network in order to carry a customer's traffic; consequently, the carrier 's tunnel all kinds of unique customer protocol across the carrier's network. It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute IP GRE in place of the ATM SVCs based upon availability.)

Referring to **Claim 57**, Tappan teaches: A communication system (The reference teaches communication system per col. 2 line 36-col. 4 line 49) comprising:

A first label switched domain for forwarding a label switched packet, the first label switched domain having a plurality of label switching device including an egress device (The reference teaches a first section of a customer MPLS network or first label switched domain which has a plurality of edge routers per col. 2 line 36-col. 4 line 49),

A second label switched domain for forwarding the label switched packet, the second label switched domain having a plurality of label switching devices including an ingress device (The reference teaches a second section of a customer MPLS network or second label switched domain) and

A non-label switched domain coupled the egress device of the first label switched domain to the ingress device of the second label switched domain (The carrier's network or non-label switched domain is coupled via the edge router or egress device which is connected to the first section of

customer's network or first label switched domain and the carrier's edge router is connected to the second section of the customer's MPLS network or second label switched domain per col. 2 line 36-col. 4 line 49); wherein

the egress device establishes a tunnel from the first label switched domain to the ingress device of the second label switched domain across the non-label switched domain (The edge router or egress device establishes a VPI/VCI or tunnel from the first section of the customer's network or first label switched domain to the carrier's edge router or ingress device which is connected to the second section of the customer's MPLS network or second label switched domain. The edge router's are interconnect via the carrier's network which is a non-label switched domain per col. 2 line 36-col. 4 line 49)

the egress device encapsulates the label switched packet (The edge router or egress device encapsulates the customer's MPLS per col. 2 line 36-col. 4 line 49)

the egress device forwards the encapsulated label switched packet over the tunnel to the ingress device of the second label switched domain (The edge router or egress device forwards the customer's MPLS packet which has been encapsulated into a ATM cell and tunnels the cell via VPI/VCI to the carrier's edge router or ingress device which is connected to the second section of the customer's MPLS network or 2nd labeled switched domain per col. 2 line 36-col. 4 line 49)

the ingress device receives the encapsulated label switched packet form the tunnel (The carrier's edge router or ingress device receives the ATM encapsulated MPLS packet which is being sent in a VPI/VCI or tunnel per col. 2 line 36-col. 4 line 49)

the ingress device de-encapsulates the label switched packet (The carrier's edge router or ingress device de- encapsulated MPLS packet which is being sent in a VPI/VCI or tunnel of the ATM cell per col. 2 line 36-col. 4 line 49)

the ingress device forwards the de-encapsulate label switched packet based on label switching information in the packet (The carrier's edge router or ingress device forwards the customer's MPLS packet based upon a label which determines the final destination address of the packet per col. 2 line 36-col. 4 line 49)

Tappan does not expressly call for: label switched and non-label switched but teaches MPLS and ATM per col. 2 lines 36-col. 4 line 49 and Fig 5

It would have been obvious to one of ordinary skill in the art at the time of the invention that MPLS performs the same function as a label switched domain because it utilizes a label stack for switching and that the service provides network performs the tunneling function because it encapsulates MPLS packets into ATM sends the ATM across the network in VPI/VCIs.

***Claim Rejections - 35 USC § 103***

**4.0** The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

**5.0** **Claims 19-27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Tappan (U.S. Patent No.: 6,473,421) in view of Casey (U.S. Patent No: 6,493,349)

Referring to **Claim 19**, Tappan teaches A computer program product for generating a packet for use on a computer system for establishing a label switched path for forwarding a packet with a label stack in a communication network, the communication network including a first label switched domain and a second label switched domain interconnected by a non-label switched domain, the computer program product comprising a computer usable medium having computer readable program code there on, (The reference teaches a method for encapsulating MPLS packets from a first section of customer's network or first label switched domain into ATM network provided by a carrier or ISP thereby tunneling the packets to a second section of customer's network or second label switched domain per col. 2 line 36-col. 4 line 49) the computer program code including:

Program code for establishing an IP tunnel across the non-label switched domain which connects the first label switched domain and the second label switched domain (The reference discloses an edge router associated with a carrier or ISP encapsulates the MPLS packet in ATM and forms a VPI/VCI tunnel per col. 2 line 36-col. 4 line 49)

Program code for forwarding the encapsulated packet through the tunnel (Edge router forwards the encapsulated MPLS packet in ATM and tunnel via VPI/VCI through the carrier's network)

Tappan does not expressly call for: program code, computer readable medium, or establishing an IP tunnel but teaches a carrier's ISP network and edge router.

Casey teaches: IP tunneling across the Internet or carrier's ISP network is well known in the art per col. 7 lines 13-20.

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize IP tunnels in place of ATM tunnels because of the availability of IP packets. The carrier has no desire to customize their network to be just like a customer's network in order to carry customer's traffic. The carrier only desires to provide pipes to carry customer traffic;

consequently, the carrier tunnels all kinds of customer unique protocols across the carrier's network.

The combination of Tappan and Casey do not expressly call for: program code or computer readable medium

It is within the level of one skilled in the art at the time of the invention to implement the functions of the combination of Tappan and Casey in hardware and software or computer program code. It would have been obvious to one of ordinary skill in the art at the time of the invention to store the program code on a computer readable medium so that it could be executed in hardware on a processor.

**In Addition Tappan teaches:**

Regarding **Claim 20**, further including program code for mapping a top label of the label stack to the tunnel (The edge router maps the top label to a VPI/VCI in the routing table per col. 2 line 36-col. 4 line 49)

Regarding **Claim 21**, wherein the tunnel is an IP tunnel (The reference teaches tunneling via ATM SVCs per col. 2 line 36-col. 4 line 49 of the primary reference. The examiner takes official notice that IP tunneling over a carrier network is well known in the art per U.S. Patent No.: 6,493,349 per col. 7 lines 13-20. The carrier has no desire to customize their network to be just like a customer's network in order to carry a customer's traffic; consequently, the carrier 's tunnel all kinds of unique customer protocol across the carrier's network. It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute IP GRE in place of the ATM SVCs based upon availability.)

Regarding **Claim 22**, wherein the IP tunnel is a Generic Routing Encapsulation (GRE) tunnel (The reference teaches tunneling via ATM SVCs per col. 2 line 36-col. 4 line 49 of the primary reference. The examiner takes official notice that IP tunneling over a carrier network is well known in the art per U.S. Patent No.: 6,493,349 per col. 7 lines 13-20. The carrier has no desire to customize their network to be just like a customer's network in order to carry a customer's traffic; consequently, the carrier 's tunnel all kinds of unique customer protocol across the carrier's network. It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute IP GRE in place of the ATM SVCs based upon availability.)

Regarding **Claim 23**, further including program code for providing a label switching protocol identifier in the encapsulated packet such that the second label switched domain may identify the packet and label stack (The carrier's edge router reads a label in order to determine the customer's MPLS packet final destination address per col. 2 line 36-col. 4 line 49.)

Regarding **Claim 24**, wherein the first label switched domain is a Multiprotocol Label Switching (MPLS) domain (The first section of customer's MPLS network or first label switched domain per col. 2 line 36-col. 4 line 49)

Regarding **Claim 25**, wherein the second label switched domain is a Multiprotocol Label Switching (MPLS) domain (The second section of the customer's MPLS network or second label switched domain per col. 2 line 36-col. 4 line 49)

Regarding **Claim 26**, wherein the first label switched domain is a MPLS domain and the second label switched domain is a MPLS domain (The first section of customer's MPLS network or first label switched domain and the second section of the customer's MPLS network or second label switched domain per col. 2 line 36-col. 4 line 49)

Regarding **Claim 27**, wherein encapsulating the packet and label stack information includes providing an MPLS identifier in the encapsulated packet such that the second label switched domain may identify the packet and label stack (The carrier's edge router de-encapsulates the MPLS and reads the label stack in order to determine the customer's final destination address per col. 2 line 36-col. 4 line 49)

***Claim Rejections - 35 USC § 101***

**6.0** 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

**Claims 50-52** are rejected under 35 U.S.C. 101 because these claims do not have utility.

Referring to **Claim 50**, A "computer program" is not a process, machine, manufacture, or composition of matter. Please note that a" computer program stored on a computer readable medium" can be manufactured, whereas, a computer program cannot be manufactured.

**In Addition:**

**Claims 51 and 52** are rejected because they depend upon claim 50.

***Response to Amendment***

**7.0** Applicant's arguments with respect to claims 1-57 have been considered but are moot in view of the new ground(s) of rejection.

The examiner respectfully disagrees with the applicant argument that the new reference Tappan fails to teach a topology which presents the problem solved by the applicant's invention. The examiner also respectively disagrees with the applicant argument that the new reference fails to teach tunneling utilizing IP GRE routing.

The new reference Tappan teaches a carrier network which creates a ATM tunnels to carry MPLS traffic between customer locations. Please refer to the rejection stated above for more details.

The reference Tappan teaches utilizing a carrier's ISP network for the tunnels utilizing ATM SVCs. The second reference Casey teaches that in addition to ATM tunneling, carriers know how to tunnel utilizing IP GRE. The type of network utilized by the carrier for tunneling traffic is based upon the availability of ATM compared to IP GRE. It would have been obvious to one of ordinary skill in the art at the time of the invention to tunnel the traffic across a carrrier's IP GRE network if it was more readily available then ATM.

**8.0** Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Conclusion***

**9.0** Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert W Wilson whose telephone number is (703) 305-4703. The examiner can normally be reached on M-F (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas Olms can be reached on (703) 305-4703. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Robert W. Wilson

Robert W Wilson
Examiner
Art Unit 2661

RWW
June 25, 2004

DOUGLAS OLMS
PRIMARY EXAMINER